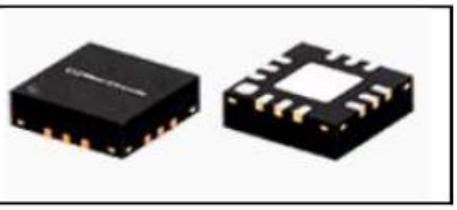
REPLACEMENT PART REFERENCE GUIDE, GP2Y1A+ AN-10-027

Original Part:	GP2Y1+	
Replacement Part:	GP2Y1A+	

Replacement Part has been judged by Mini-Circuits Engineering as a suitable replacement to Original Part.

MECHANICAL DIMENSIONS

Case Style: DQ1225
Both the GP2Y1A+ and GP2Y1+ uses the same case style DQ1225 case style.

CONCLUSION:

1) **FORM-FIT-FUNCTIONAL ANALYSIS$_a$**:

The Replacement Part GP2Y1A+ has the same form and fit as he original part GP2Y1+

The Replacement Part maximum power handling and operating temperature on the Absolute Maximum Table were changed. The Replacement Part's maximum input power as a splitter is now +40dBm at 25C instead of the Original Part's maximum input power as a splitter of 1.5W (+31.76dBm). Replacement Part's maximum internal dissipation power is now +38dBm at 25C instead of the Original Part's maximum internal dissipation power of 0.75W (+28.75dBm).

Additionally, the Replacement Part's maximum operating temperature is now +105°C instead of the Original Part's maximum operating temperature of 85°C

Replacement Part and Original Part feature the same expected performance. See section 2 for Min. Max and Typical performance and graphs.

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2) RF PERFORMANCE COMPARISON AT ROOM TEMPERATURE:

MODEL: GP2Y1+, GP2Y1A+

Parameter	Freq (MHz)		GP2Y1+			GP2Y1A+		
	From	To	Min.	Avg.	Max.	Min.	Avg.	Max.
INSERTION LOSS[1] - Above 3dB (dB)	1550	1550		1.0	1.9		1.3	1.6
	2500	2500					1.1	1.4
	3700	3700					1.2	1.6
	4400	4400					1.6	2.0
ISOLATION (dB)	1550	1550	12	20		17	22	
	2500	2500				17	22	
	3700	3700				28	33	
	4400	4400				10	14	
AMPLITUDE UNBALANCE (dB)	1550	1550		0.04	0.3		0.03	0.2
	2500	2500					0.03	0.2
	3700	3700					0.05	0.2
	4400	4400					0.06	0.2
PHASE UNBALANCE (Deg)	1550	1550		0.60	6.0		0.9	3.0
	2500	2500					0.8	4.0
	3700	3700					1.2	4.0
	4400	4400					1.1	4.0
RETURN LOSS - PORT 1,2[2] (dB)	1550	1550		15.6			20	
	2500	2500					29	
	3700	3700					18	
	4400	4400					21	
RETURN LOSS - SUM (dB)	1550	1550		15.6			21	
	2500	2500					33	
	3700	3700					17	
	4400	4400					18	

1. Typical insertion loss displayed are the worst case among Port 1 and Port 2.
2. Typical return loss displayed are the worst case among Port 1 and Port 2.

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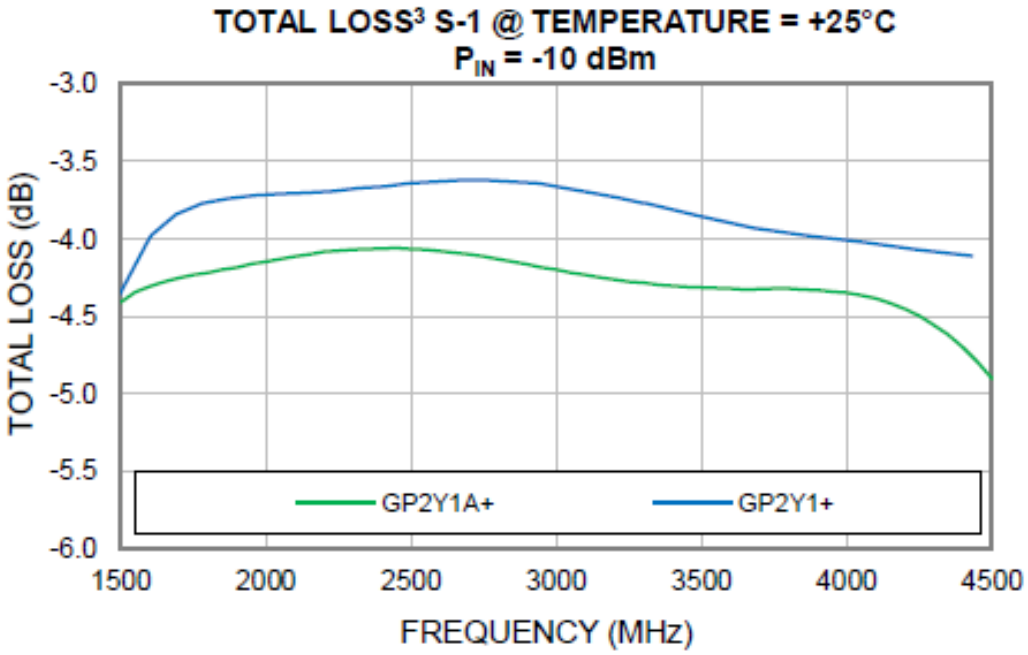
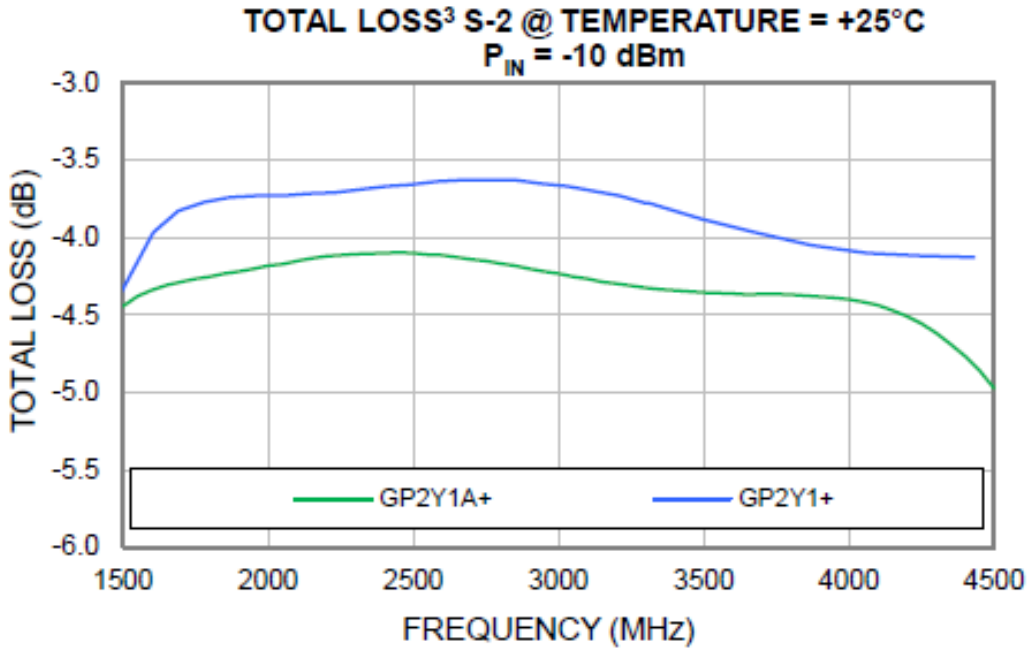
3) TYPICAL PERFORMANCE GRAPHS AT ROOM TEMPERATURE:





3. Total Loss = Single Path (S-1 or S-2) Insertion Loss + 3 dB Splitter Loss

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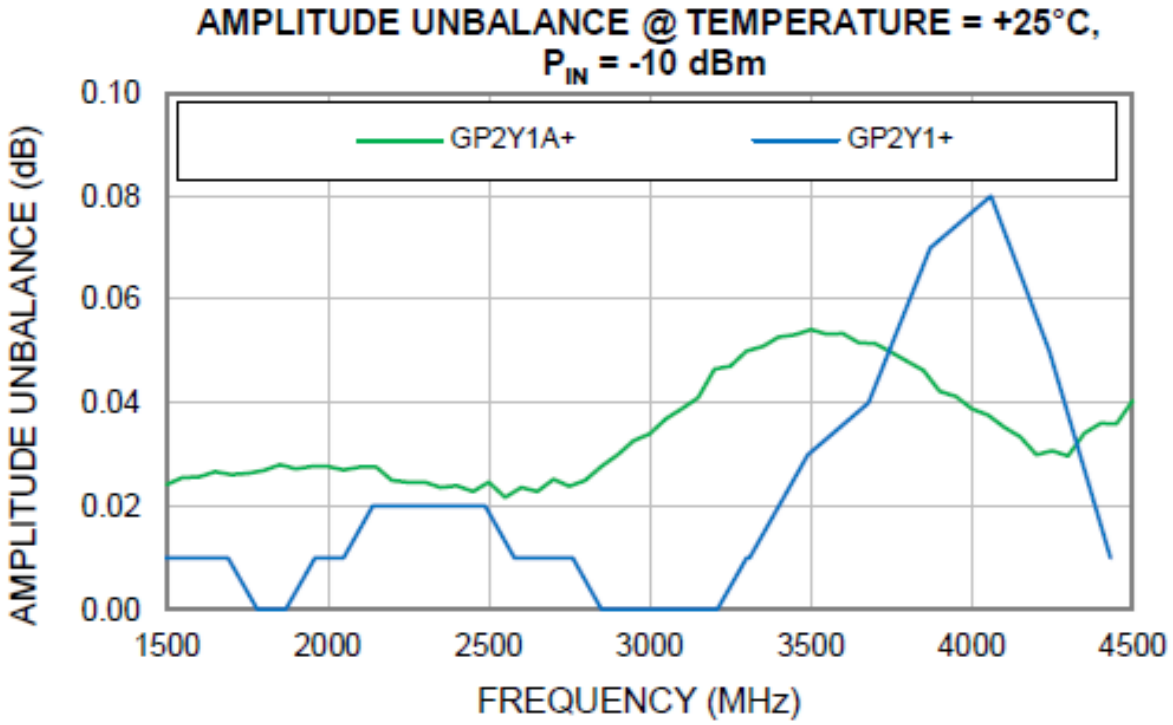

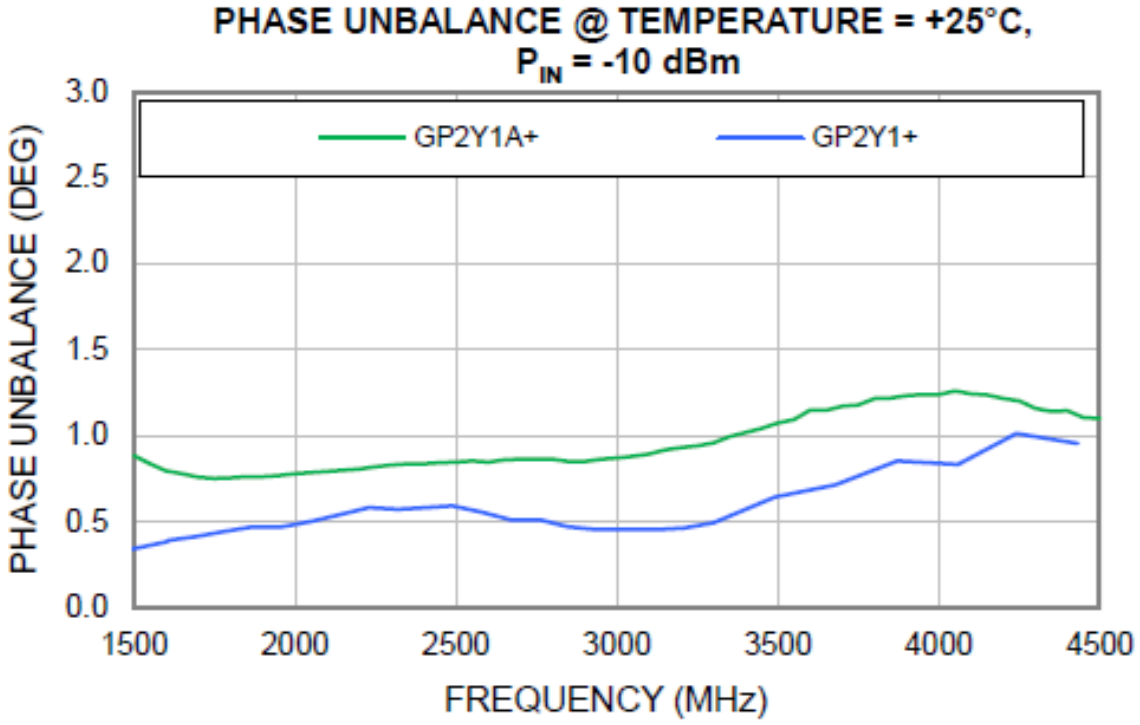

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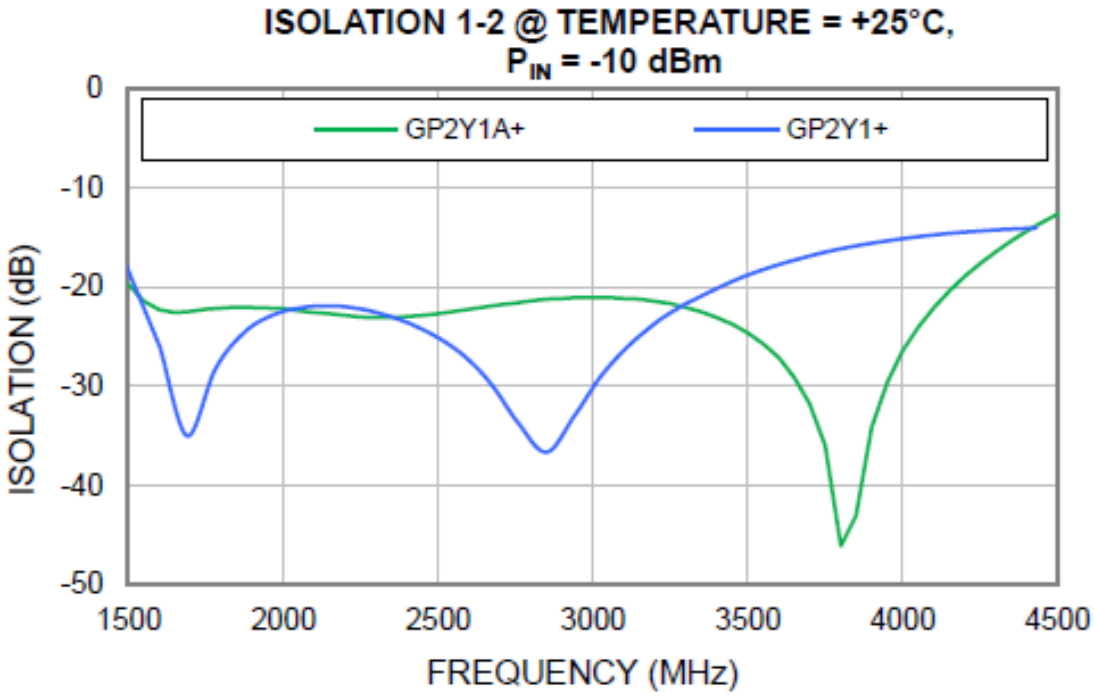

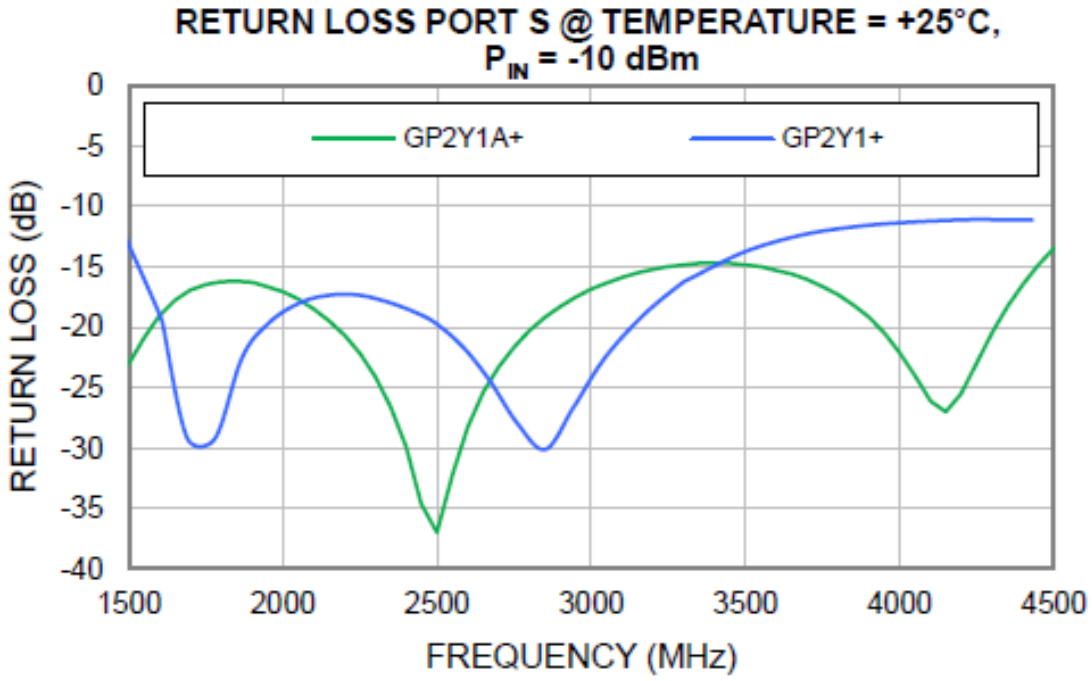

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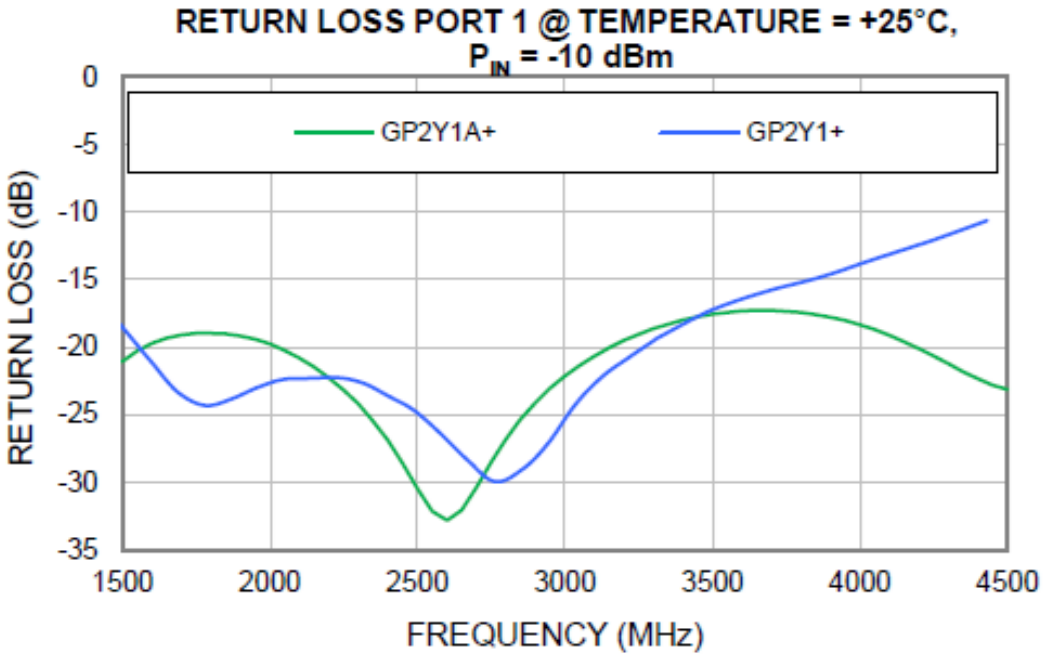

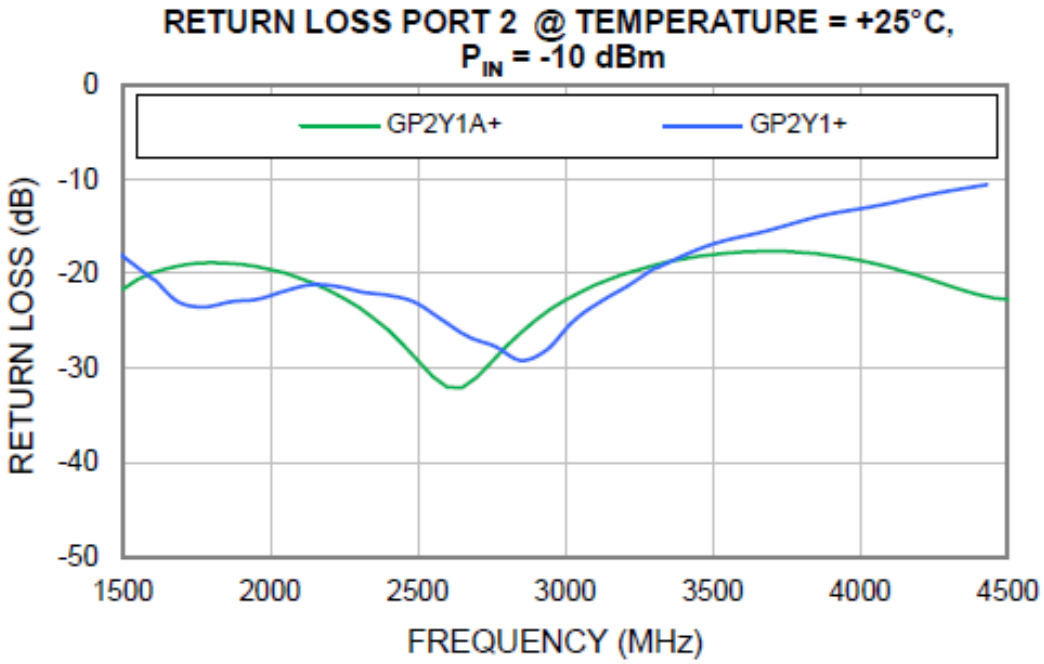

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